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SUBJECT: Type Evaluations (February 1997)

TO: Executive Secretaries, Breed Associations

FROM: H. D. Norman, Research Leader, AIPL *H. Duane Norman*

Enclosed is a listing of your breed's bull evaluations for type sorted by National Association of Animal Breeders' code for artificial-insemination (AI) organizations. Within each AI organization, bulls are listed in registration number order. The National Association of Animal Breeders (NAAB) also has been provided with information for all breeds for distribution to AI organizations.

The policy at the Animal Improvement Programs Laboratory has been to update the genetic base for linear type every five years at the same time as milk and components. This was done for the January 1995 genetic evaluation run. The production and type bases are defined so that the PTAT of cows born in 1990 is equal to 0.

To conform with animal model terminology for yield evaluations, the terms predicted transmitting ability (PTA) and reliability (REL) are used. Unlike REL for yield traits, bull REL for type traits does not include ancestor information.

The PTA for final score (PTA type) appears in column 5 on the enclosed linear type list. PTA type may be used for calculating production-type indexes (PTI's) for the Ayrshire and Milking Shorthorn bulls and cows and for Brown Swiss cows after receipt of yield information from the Animal Improvement Programs Laboratory. The PTI is based on weights of 4 for PTA protein, 2 for PTA fat, and 1 for PTA type:

$$PTI = \left[ 4 \left( PTA_{\text{protein}} / SD_{PTA_{\text{protein}}} \right) + 2 \left( PTA_{\text{fat}} / SD_{PTA_{\text{fat}}} \right) + 1 \left( PTA_{\text{type}} / SD_{PTA_{\text{type}}} \right) \right] (100 / 7)$$

where SD = standard deviation. Parameters of PTA necessary to calculate PTI are:

Breed	$SD_{PTA_{\text{protein}}}$	$SD_{PTA_{\text{fat}}}$	$SD_{PTA_{\text{type}}}$
	<i>pounds</i>	<i>pounds</i>	
Ayrshire	12.3	15.4	.84
Brown Swiss	17.3	21.5	.53
Guernsey	13.5	18.1	1.09
Jersey	17.0	22.0	1.03
Milking Shorthorn	17.8	21.6	.46

For example, to estimate PTI for an Ayrshire bull with PTA protein = +26, PTA fat = +24, and PTA type = +1.0:

$$\begin{aligned} \text{PTI} &= [4(26/12.3) + 2(24/15.4) + 1(1.0/.84)](100/7) \\ &= 182.323 \approx 182 \end{aligned}$$

Details about the calculation of PTI's for the Guernsey and Jersey bulls and cows and for Brown Swiss bulls have been made available by the American Guernsey Association, the American Jersey Cattle Association, and the Brown Swiss Cattle Breeders Association. The PTI's and cow performance indexes for other breeds will be mailed on **February 7, 1997**. Active AI evaluations will be mailed on **February 17, 1997**, after the AI organizations have had an opportunity to update the status of their bulls.

Enclosure